

What is claimed is:

Pub B1 1. A device for treating cardiac disease of a heart having an upper portion and a lower portion divided by an A-V groove, the device comprising:

- 5 a. a jacket of flexible material defining a volume between an upper end and a lower end, the jacket adapted to be secured to the heart and adapted to be adjusted on the heart to snugly conform to an external geometry of the heart and assume a maximum adjusted volume for the jacket to constrain circumferential expansion of the heart beyond the maximum adjusted volume during diastole and permit substantially unimpeded
- 10 contraction of the heart during systole; and
- b. a delivery source for the delivery of one or more therapeutic agents to the surface of the heart.

~~2. The device according to claim 1 wherein the jacket comprises an elastic material.~~

3. The device according to claim 1 wherein the flexible material is sufficiently flexible to gather excess amounts of the material following placement of the jacket over the heart to snugly conform the material to an external geometry of the heart.

4. The device according to claim 1 wherein the flexible material is selected from polytetrafluoroethylene, expanded polytetrafluoroethylene, polypropylene, polyester and stainless steel.

5. The device according to claim 1 wherein the jacket surrounds the lower portion of the heart.

6. The device according to claim 1 wherein the jacket surrounds the upper portion of the heart.

7. The device according to claim 1 wherein the device provides localized delivery of one or more therapeutic agents to a target area on the surface of the heart.

8. The device according to claim 1 wherein the device provides bi-directional delivery of one or more therapeutic agents to the surface of the heart and an area surrounding the heart.

9. The device according to claim 1 wherein the one or more therapeutic agents comprise one or more pharmacological agents.

10. The device according to claim 1 wherein the one or more therapeutic agents comprise cellular material.

11. The device according to claim 10 wherein the cellular material comprises myocytes.

12. The device according to claim 1 wherein the delivery source comprises a coating on the jacket.

13. The device according to claim 12 wherein the coating comprises a matrix material and the therapeutic agent.

14. The device according to claim 13 wherein the matrix material is biodegradable.

15. The device according to claim 1 wherein the delivery source comprises a separable element from the jacket.

16. The device according to claim 15 wherein the separable element is a bladder or a patch.

17. The device according to claim 15 wherein the separable element is a bioadhesive.

18. The device according to claim 1 wherein the jacket actively assists in delivery of the therapeutic agent to the surface of the heart.

Pub B3 19. A method for treating cardiac disease of a heart having an upper portion and a lower portion divided by an A-V groove, the method comprising:

a. surgically accessing the heart;

b. applying a treatment device on the heart, the device comprising:

5 1) a jacket of flexible material defining a volume between an upper end and a lower end, the jacket adapted to be secured to the heart and adapted to be adjusted on the heart to snugly conform to an external geometry of the heart and assume a maximum adjusted volume for the jacket to constrain circumferential expansion of the heart beyond the maximum adjusted volume during diastole and permit substantially unimpeded contraction of the heart during systole; and

10 2) a delivery source for the delivery of one or more therapeutic agents to the surface of the heart;

c. securing the treatment device to the heart; and

15 d. surgically closing access to the heart while leaving the treatment device on the heart.

20 20. The method according to claim 19 wherein the jacket actively assists in delivery of the one or more therapeutic agents to the surface of the heart.

Pub B4 21. A method for providing controlled and sustained administration of one or more therapeutic agents effective in treating cardiac disease, the method comprising surgically implanting a sustained therapeutic agent delivery system at a desired location on the heart, the therapeutic agent delivery system comprising:

25 a. a jacket of flexible material defining a volume between an upper end and a lower end, the jacket adapted to be secured to the heart and adapted to be adjusted on the heart to snugly conform to an external geometry of the heart and assume a maximum adjusted volume for the jacket to constrain circumferential expansion of the heart beyond the maximum adjusted volume during diastole and permit substantially unimpeded contraction of the heart during systole; and

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b. a delivery source for the delivery of one or more therapeutic agents to the surface of the heart.

22. The method according to claim 21 wherein the jacket actively assists in delivery of the  
5 therapeutic agent to the surface of the heart.

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